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why fruit trees fail to bear

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A fruit tree normally begins to bear fruit after it becomes old enough to blossom freely, provided other conditions are favorable. Tree health and environment, bearing habits, and the cultural practices used can all directly influence its ability to produce fruit. Adequate pollination is also essential to fruit production.

If any of these conditions are not favorable, yields may be reduced, or the tree may not bear at all. A grower can, however, exercise some control over most of them.

AGE OF BEARING

Most nursery-produced fruit trees have tops that are 1 or 2 years old. The length of time required for them to bear fruit after planting varies with the kind of fruit.

Following are the ages (from planting time) at which fruit trees can be expected to bear:

	Years
Apple	4 to 7
Apricot	4 to 5
Sour cherry	4 to 5
Sweet cherry	5 to 7
Citrus	3 to 5
Fig	2 to 3
Peach	3 to 4
Pear	4 to 6
Plum	4 to 6
Quince	5 to 6

Dwarf apple and pear trees usually begin to bear 1 or 2 years earlier than standard-size trees.

TREE HEALTH

Trees must be healthy to bear good fruit in quantity. Those that grow vigorously usually begin to bear sooner than those that do not.

If fruit trees are not sprayed at all or not sprayed properly, disease and insect pests may greatly reduce the size and quality of the yield, although the trees are seldom completely barren.

Scab fungus is typical of diseases that attack and may largely destroy the leaves and young fruits of apple and pear trees. The fungus that causes brown rot attacks and destroys many of the blossoms of peach and plum trees.

For information on controlling fruit tree diseases and insects, consult your State extension service or write to the U. S. Department of Agriculture, Washington 25, D. C.

ENVIRONMENT

Extremely cold weather during the winter dormancy may kill the fruit buds. Winter cold rarely threatens the hardy apples, pears, sour cherries, and plums. Among the common fruits, peaches are most sensitive to cold. Peach buds may be killed even in midwinter by temperatures of about 10° below zero. Sweet cherry trees are also relatively sensitive to cold.

As the fruit buds grow and open they are more susceptible to frost injury. Before the blossoms open but after the buds are exposed, they usually can stand temperatures of 24° to 25° above zero. But the open blossoms of practically all fruit trees will be killed if the temperature drops to about 27° above zero. Injured blossoms may appear normal after a severe frost, but if the center part (pistil) of all the blossoms are killed the tree will not bear fruit.

Covering the trees when heavy frost is expected will sometimes prevent bud or blossom injury if temperatures do not get too low or if the cold weather does not last long. Some commercial orchardists heat their orchards during spring frosts but this is not practical for most home gardeners.

Most hardy fruit trees require exposure to some cold winter weather as a stimulus to break dormancy and to start spring growth. Without sufficient winter cold, spring growth is delayed, and when growth starts it is irregular and slow. These conditions are not favorable for good fruit bearing.

Hardy fruit trees growing in climates considerably warmer than their native ones usually bear poorly because of insufficient winter cold. This condition is general following mild winters in areas within about 200 miles of the Gulf of Mexico and in other mild areas such as southern California. Following extremely mild winters, the area may extend farther north.

POLLINATION

All fruit trees require pollination to produce fruit. Unless adequate pollination takes place, trees may blossom abundantly but not bear.

Persimmons and dates have male trees that produce pollen and female trees that produce fruit.

It is necessary to have at least one tree of each gender to produce fruit.

Fruit trees of some species have "perfect" flowers—both the anthers, which contain pollen, and the pistils, which develop into fruit, are in the same blossom. If they bear fruit as a result of pollination from their own blossoms, these trees are called "self fruitful." However, many fruits with perfect flowers will not set fruit with their own pollen, but require the pollen from another variety to set the fruit. Such varieties are called "self unfruitful."

Nearly all citrus trees are "self fruitful." Other examples are figs (except the Smyrna type grown in California); sour cherries; quinces; peaches, except the J. H. Hale and a few others; apricots; and the European-type plums such as the Stanley, Italian, and Green Gage.

Most apples, sweet cherries, Japanese- and American-type plums, and pears are self unfruitful. For adequate pollination, plant two or more varieties near each other.

The following planting practices are recommended:

Apple

With the exception of Golden Delicious, most apple varieties are self unfruitful. It is generally best to plant at least two varieties together. Poor pollen-producing apple varieties—such as Winesap, Staymen, Gravenstein, Baldwin, and Rhode Island Greening—need to be planted with at least two other varieties to insure pollination of all the varieties.

Sweet cherry

Bing, Lambert, and Napoleon (Royal Anne) varieties do not pollinate each other. For adequate pollination, plant nearby a pollinating variety such as Black Tartarian, Black Republican, Governor Wood, or Windsor; or a sour cherry such as Montmorency.

Pear

Many pear varieties are self unfruitful or partially so. It is good practice to plant at least two varieties together. Seckel and Bartlett pears will not pollinate each other.

Plum

Most varieties of Japanese and American plums are self unfruitful. Plant two or more varieties together.

BIENNIAL BEARING

Occasionally certain fruit trees, particularly apples, bear heavily one year and largely fail to bloom the following year. This condition is called biennial bearing. Since the buds of most hardy fruits that open in the spring are formed during the previous summer, a very heavy crop may prevent bud formation.

Biennial bearing is difficult to change or correct. However, a return to normal yearly fruit production may be induced by early and heavy thinning (picking off) of the fruit during the year when the trees are producing a large yield. Only about one fruit per foot along the branches should be left after thinning to correct a biennial bearing condition, and the thinning should be done within 30 days after blooming.

CULTURAL PRACTICES

Fruit trees need full sunlight for best fruit production. Inadequate sunlight delays the beginning of fruit bearing and may reduce the amount of fruit the trees bear. Avoid placing fruit trees where they will be shaded by other trees or by buildings.

Fruit trees grow more vigorously and bear better if they have adequate soil for the development of their root systems. Do not plant them where roots of forest or shade trees extend into the same soil. Cultivate or mulch around fruit trees to reduce competition from weeds or grasses.

Prune trees lightly up to bearing age. Heavy pruning retards the beginning of fruit bearing. Prune primarily by thinning out branches instead of heading back (reducing the height of the trees).

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